AUTOMATIC HIGH SPEED PUBLISHING SYSTEM

This application is a continuation of application Ser. No. 07/626,989, filed Dec. 13, 1990, now abandoned.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to printing and publishing. More particularly, it is concerned with a high speed, high production database publishing system preferably having a plurality of microprocessors for flowing manuscript material such as text and graphics into predefined entities making up the structure of a publication according to predetermined attributes associated with each entity, and for imaging manuscript material in a sequence of processing stages with each stage including a plurality of processing operations.

2. Description of the Prior Art

Traditionally, printers and publishers responsible for high volumes of original type set work have many highly qualified data entry personnel, each operating behind an expensive work station for entering original manuscript data into a mainframe computer typography system. At the time of entry, the original manuscript data is also normally preceded and/or succeeded with certain typesetting codes that "tag" the associated text for handling in a special way.

In the prior art, a number of typography control language systems have evolved such as SGML, CALS, TEX and troff which require numerous data entry personnel knowledgeable of the individual typography language codes for modifying and encoding different portions of the text until ready for printing or phototypesetting. Additionally, specialized personnel must be further proficient in initially setting up and maintaining the so-called rule table or "document type definition" (DTD) for all the different tagging codes used in each typography language.

In another prior art technique, typists or personal computer operators directly compose camera-ready copy from which printing plates can be produced. This process is also expensive and slow because each page must also be totally composed one at a time including page position, margins, fonts, emphasis such as bold and italic, and a myriad of other details, and all without errors.

As is appreciated by those skilled in the art, these prior art systems result in high labor costs and high production costs because of the relatively slow throughput. Accordingly, the prior art points out the need for a system which eliminates the need for large numbers of highly skilled data entry personnel, and which increases production.

SUMMARY OF THE INVENTION

The automatic high speed publishing system of the present invention solves the prior art problems discussed above. More particularly, the system hereof allows data entry personnel with little training to enter manuscript material quickly and efficiently in a "database" manner with minimal encoding, and later allows rapid processing of the manuscript material into camera ready form for many publications with only one operator in attendance.

Broadly speaking, the present invention defines the structure of a publication in advance as being composed of structural entities such as chapter title, author, textual paragraph, index and so forth. Each entity is preassigned selected attributes which include, for example, the position of an entity on a page, font, type size, and which further include such things as whether the page should have thumb index, a graphic icon, border art and so forth. Manuscript material such as dedicated graphics and filler text or graphics useable for many publications can also be stored before entry of any manuscript material particular to a given publication. In operation, the entered manuscript material is retrieved and "flowed" into the corresponding entity in a "database" manner along with other material such as filler text or graphics retrieved in response to the attributes assigned to that entity. As a further advantageous feature, multiple color separations can be automatically created for the same publication.

Additionally, the processing operations are organized into a series of stages for processing the manuscript material in assembly line fashion. This allows a number of publications to be in various stages of process at any one time resulting in automatic high speed processing of manuscript material for publication. Other preferred aspects of the present invention are discussed further hereinbelow.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a schematic illustration of the preferred computer apparatus of the present invention;

FIG. **2** is a computer program flowchart illustrating operation of Node **3**;

FIG. **3A** is the first portion of a computer program flowchart illustrating a general overview of the Page Format Utility computer of FIG. **1**;

FIG. **3B** is the remaining portion of a computer program flowchart of FIG. **3A**;

FIG. **4** is a computer program flowchart illustrating phase **1** operation of the Page Format Utility computer of FIG. **1**;

FIG. **5A** is the first portion of a computer program flowchart illustrating phase **2** and **3** of the Page Format Utility computer of FIG. **1**;

FIG. **5B** is another portion of the computer program flowchart of FIG. **5A**;

FIG. **5C** is the remaining portion of the computer program flowchart of FIG. **5A**;

FIG. **6A** is the first portion of a computer program flowchart illustrating phase **4** operation of the Page Format Utility computer of FIG. **1**; and

FIG. **6B** is the remaining portion of a computer program flowchart of FIG. **6A**.

FIG. **7** is a computer program flowchart illustrating operation of the Code Definition Editor computer of FIG. **1**;

FIG. **8A** is the first portion of a computer program flowchart illustrating the operation of Node **1** of the computer apparatus of FIG. **1**;

FIG. **8B** is the remaining portion of the computer program flowchart of FIG. **8A**;

FIG. **9** is a computer program flowchart illustrating a general overview of the operation of Node **2**;

FIG. **10A** is the first portion of a computer program flowchart illustrating Phase **1** operation of Node **2**;

FIG. **10B** is the remaining portion of the computer program flowchart of FIG. **10A**.

FIG. **11A** is the first portion of a computer program flowchart illustrating phase **2** operation of Node **2**;